

November 1, 2010

Mr. Ed Jones  
State of Washington Department of Ecology  
Northwest Regional Office  
3190 160th Avenue Southeast  
Bellevue, Washington 98008

**RE: VAPOR INTRUSION TIER 2 ASSESSMENT  
CAPITAL INDUSTRIES  
5801 3RD AVENUE SOUTH  
SEATTLE, WASHINGTON  
FARALLON PN: 457-004**

Dear Mr. Jones:

Farallon Consulting, L.L.C. (Farallon) has prepared this letter on behalf of Capital Industries, Inc. (Capital) to present the analytical results of shallow groundwater samples collected during the Remedial Investigation (RI) that have been used to assess the potential for vapor intrusion (VI) in buildings in the Capital Area of Investigation. Assessment of VI has been conducted in accordance with the *Revised Inhalation Pathway Interim Measure (IPIM) Work Plan* prepared by PSC in 2002, the *Summary of Inhalation Pathway Interim Measure Approach* prepared by PSC in 2006, and the *Revised Interim Vapor Intrusion Plan, West of 4th Avenue South Investigation Area, Seattle, Washington* prepared by Arrow Environmental et al. in 2007. This letter has been prepared in response to the letter provided to Capital on October 1, 2010 from the State of Washington Department of Ecology (Ecology).

As requested in the letter from Ecology and in accordance with Exhibit D of Agreed Order No. DE 5348 (Agreed Order) and Capital's Vapor Intrusion Assessment Work Plan (VI Assessment Work Plan), the following are presented herein:

- Analytical results of shallow groundwater samples relevant to the assessment of vapor intrusion at buildings located south of the Capital property;
- Sampling locations and methodologies employed to identify buildings where Tier 3 VI Assessment may be necessary;
- Identification of buildings that are candidates for Tier 3 VI Assessment; and
- Discussion of previous VI assessment activities.

Capital's VI Assessment Work Plan presents a scope of work for VI assessment at buildings within the Capital Area of Investigation that is consistent with the IPIM approach defined by PSC. The IPIM approach includes a four-tiered IPIM process that is summarized below.

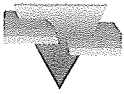
- **Tier 1 and 2:** Analytical results of groundwater samples are compared to groundwater IPIM Action levels (IPIMALs) to determine if there is a potential VI concern in nearby residential (Tier 1) or commercial (Tier 2) buildings. The groundwater data are used to calculate cancer cumulative exceedance factor (CCEF) and a non-cancer cumulative exceedance factor (NCCEF). If either CCEF or NCCEF exceeds a factor of 10 (which represents a carcinogenic risk greater than 1E-05 or hazard index greater than 1, respectively), then the building is further evaluated under Tier 3 or may proceed directly to Tier 4.
- **Tier 3:** Building-specific sampling is conducted (potentially including indoor air, ambient air, additional groundwater, and soil gas/sub-slab soil gas sampling) to determine empirically whether installation of a VI mitigation system (under Tier 4) is warranted. Under certain circumstances, the decision process may skip Tier 3 and proceed directly from Tier 1/Tier 2 to Tier 4.
- **Tier 4:** A VI mitigation system is installed and operated as an interim measure to mitigate the VI pathway.

Based on Tier 1 and Tier 2 of the IPIM approach, the analytical results of groundwater samples collected from the Water-Table Zone are compared to groundwater IPIMALs to determine if the potential for VI exists in nearby buildings. The analytical results of groundwater samples that trigger Tier 3 assessment in the buildings at, and south of, the Capital property are summarized in the following section.

### **SHALLOW GROUNDWATER DATA AND IDENTIFICATION OF TIER 3 ASSESSMENT BUILDINGS**

Table 1 identifies specific Water-Table Zone monitoring wells that have been used for building-specific Tier 2 VI assessment. Table 2 summarizes the calculated CCEFs and NCCEFs for the analytical results of groundwater samples collected from monitoring wells identified in Table 1. Based on the data in Table 1 and 2, the analytical results for groundwater samples collected from the following monitoring wells identified the associated buildings for Tier 3 VI assessment:

- CI-MW-1-WT – Capital Industries Plant 2;
- MW-2 – Capital Industries Plant 2 Canopy Area;
- MW-5 – Capital Industries Plant 1, Plant 2, and Plant 2 Canopy Area;
- CI-9-WT – Mobile Crane Canopy Structures;
- CI-10-WT – Beckwith and Kuffel Building; and
- CG-137-WT – Capital Industries Plant 2 Canopy Area, Olympic Medical Building, Mobile Crane Office Building.



Specific building/structure(s) identified for potential Tier 3 VI assessment are discussed below.

### **Capital Industries Plant 1, Plant 2, and Plant 2 Canopy Area**

The majority of the Capital Plant 1, Plant 2, and Plant 2 Canopy Area facilities are large warehouse-type interior spaces with large HVAC systems. Previous inspections with Ecology have determined that the warehouse-type areas such as these do not require additional VI assessment and do not pose a VI risk to occupants. However, two small enclosed areas exist in Capital Plant 1 and Plant 2. These areas include the Shipping Office (Plant 1) and the QA/QC Office (Plant 2). Due to the enclosed nature of these spaces, they have been selected for Tier 3 VI assessment.

### **Mobile Crane Canopy Structures**

The Mobile Crane Canopy Structures are open-air structures and do not pose a VI risk to occupants. Therefore, no Tier 3 VI assessment will be performed at these structures.

### **Mobile Crane Office Building**

The Mobile Crane Office Building is a commercial portable-type building located south of Capital Plant 2. This building is enclosed and therefore presents a potential VI risk to workers occupying the building. The Mobile Crane Office Building has been identified for Tier 3 VI assessment.

### **Beckwith and Kuffel Building**

The Beckwith and Kuffel Building is located south of the Capital property and south of the Olympic Medical Building. Limited information is known about the interior layout or the operations conducted in the Beckwith and Kuffel Building. The concentrations of HVOCs detected in groundwater samples collected from monitoring well CI-10-WT identify the Beckwith and Kuffel Building for Tier 3 VI assessment. However, a detailed walk-through will be conducted, preferably with Ecology, to determine areas that pose a potential VI risk to occupants, areas that may be exempt from Tier 3 VI assessment, and specific sampling locations.

### **Olympic Medical Building**

The warehouse portion of the Olympic Medical Building is currently being mitigated for VI. No additional VI assessment is required for this building beyond ongoing operation and maintenance activities.

## **PREVIOUS VI ASSESSMENT ACTIVITIES**

Capital conducted reconnaissance groundwater sampling in November 2008 and July 2009 within and south of the Capital Area of Investigation. Following reconnaissance groundwater sampling, the concentrations of VOCs in groundwater samples collected from the Water Table Zone were compared to the Groundwater IPIMALs to determine buildings that are at potential risk of VI. However, prior to proceeding with VI assessment, groundwater monitoring wells were installed based on the analytical results of reconnaissance groundwater sampling. The analytical results of groundwater samples collected from monitoring wells were compared to the

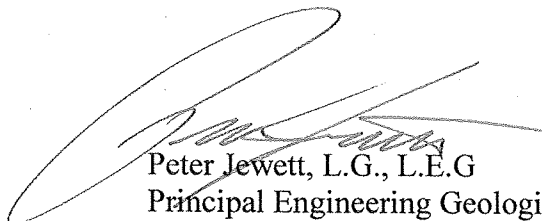
Groundwater IPIMALs to determine buildings that are candidates for Tier 3 VI assessment. This process is consistent with Capital's VI Assessment Work Plan. Therefore, no changes to the VI Assessment Work Plan are necessary.

Sincerely,

**Farallon Consulting, L.L.C.**



Daniel Caputo  
Project Chemist



Peter Jewett, L.G., L.E.G  
Principal Engineering Geologist

Attachments: Figure 1, *Site Plan Showing Monitoring Well Network Locations*  
Table 1, *Summary of Monitoring Wells Used for Vapor Intrusion Assessment*  
Table 2, *CCEFs and NCCEFs for Groundwater Results*

cc: Ronald Taylor, Capital Industries, Inc.  
Don Verfurth, Gordon and Rees,

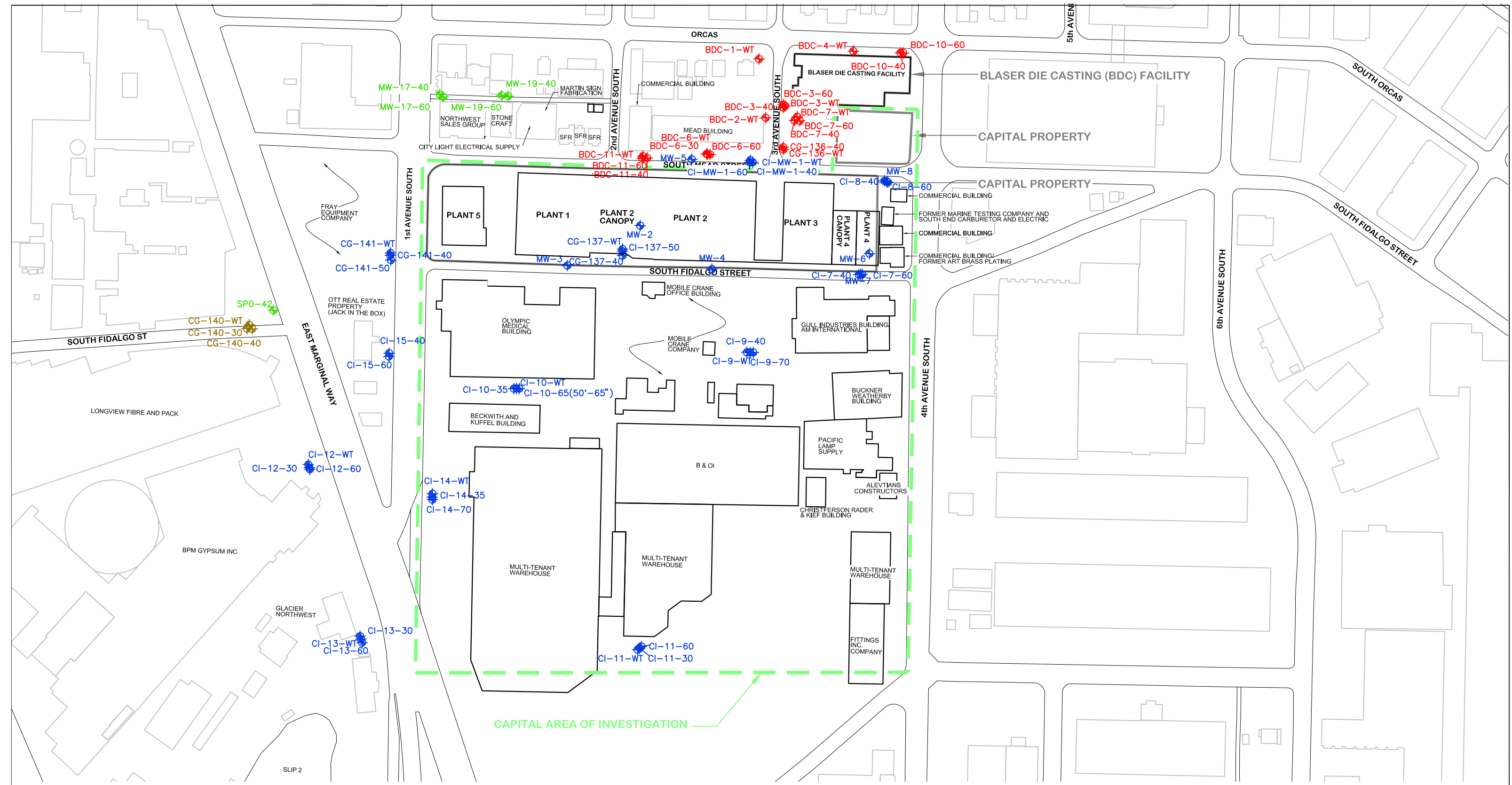
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## **FIGURES**

### **VAPOR INTRUSION TIER 2 ASSESSMENT**

**Capital Industries  
5801 3rd Avenue South  
Seattle, Washington**

**Farallon PN: 457-004**



LEGEND			
	CAPITAL INDUSTRIES MONITORING WELL		PSC MONITORING WELL
	BLASER DIE CASTING BORING MONITORING WELL		ART BRASS PLATING BORING MONITORING WELL
ALL LOCATIONS ARE APPROXIMATE			



**FARALLON CONSULTING**  
 975 5th Avenue Northwest  
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**FIGURE 1**  
 SITE PLAN SHOWING  
 MONITORING WELL NETWORK LOCATIONS  
 CAPITAL INDUSTRIES, INC.,  
 SEATTLE, WASHINGTON

## **TABLES**

### **VAPOR INTRUSION TIER 2 ASSESSMENT**

**Capital Industries  
5801 3rd Avenue South  
Seattle, Washington**

**Farallon PN: 457-004**

**Table 1**  
**Summary of Monitoring Wells Used for Vapor Intrusion Assessment**  
**Capital Industries**  
**Seattle, Washington**  
**Farallon PN: 457-004**

Monitoring Well Identification <sup>1</sup>	Associated Building Name <sup>1</sup>	Street Address	IPIM Status
CI-MW-1-WT	Capital Plant 2	5801 3rd Avenue South	Greater Plant 2 area exempt from further VI assessment except for enclosed interior areas in the western part of Plant 2. Interior areas identified for Tier 3 VI assessment.
MW-2	Capital Plant 2 Canopy Area	5801 3rd Avenue South	Greater Plant 2 Canopy Area exempt from further VI assessment except for enclosed interior areas in the Plant 2 Canopy Area. Interior areas identified for Tier 3 VI assessment.
MW-3	Olympic Medical Building	5900 1st Avenue South	Currently under mitigation.
MW-4	Mobile Crane Office Building	5917 4th Avenue South	Groundwater results from this well do not trigger Tier 3 VI assessment.
MW-5	Capital Plant 1, Plant 2, and Plant 2 Canopy Area	5801 3rd Avenue South	Greater Plant 1, 2, and 2 Canopy areas are exempt from further VI assessment except for enclosed interior areas. Interior areas identified for Tier 3 VI assessment.
MW-6	Capital Plant 4	5801 3rd Avenue South	Exempt from further VI assessment except for enclosed interior areas. Groundwater results from this well do not trigger Tier 3 VI assessment.
MW-7	Gull Industries Building/AM International	5901 4th Avenue South	Groundwater results from this well do not trigger Tier 3 VI assessment.
MW-8	Capital Plant 4, Commercial Buildings along 4th Avenue South	5801 3rd Avenue South; 801, 5807, and 5815 4th Avenue South	Groundwater results from this well do not trigger Tier 3 VI assessment.
MW-9-WT	Mobile Crane Canopy Structures	5917 4th Avenue South	Open air structures, no potential VI risk.
MW-10-WT	Beckwith and Kuffel Building	5930 1st Avenue South	Identified for Tier 3 VI assessment.
MW-11-WT	Multi-Tenant Warehouse - Southern Portion	5960 1st Avenue South	Groundwater results from this well do not trigger Tier 3 VI assessment.
MW-12-WT	BPM Gypsum, Inc.	5931 E. Marginal Way South	Groundwater results from this well do not trigger Tier 3 VI assessment.
MW-13-WT	Glacier Northwest	5975 E. Marginal Way South	Groundwater results from this well do not trigger Tier 3 VI assessment.
MW-14-WT	Multi-Tenant Warehouse - Northern Portion	5960 1st Avenue South	Groundwater results from this well do not trigger Tier 3 VI assessment.
CG-137-WT	Plant 2 Canopy, Olympic Medical Building, Mobile Crane Office Building	5801 3rd Avenue South; 5917 4th Avenue South; 5917 4th Avenue South	Interior areas of Plant 2 Canopy identified for Tier 3 VI assessment. Mobile Crane Office Building identified for Tier 3 VI assessment. Olympic Medical Building currently being mitigated.
CG-141-WT	Ott Real Estate Property (Jack in the Box)	5903 1st Avenue South	Groundwater results from this well do not trigger Tier 3 VI assessment.

**NOTES:**

<sup>1</sup>Locations of monitoring wells and buildings are shown on Figure 1.

IPIM = inhalation pathway interim measure  
VI = vapor intrusion



**Table 2  
CCEFs and NCCEFs for Groundwater Results  
Capital Industries  
Seattle, Washington  
Farallon PN: 457-004**

Water Table Zone Monitoring Wells <sup>1,2</sup>	Sample Date	Tetrachloroethene			Trichloroethene			cis-1,2-dichloroethene			trans-1,2-dichloroethene			Vinyl Chloride			CCEF <sup>1</sup>	NCCEF <sup>2</sup>
		C <sub>groundwater</sub>	EF <sub>Cancer</sub>	EF <sub>Noncancer</sub>	C <sub>groundwater</sub>	EF <sub>Cancer</sub>	EF <sub>Noncancer</sub>	C <sub>groundwater</sub>	EF <sub>Cancer</sub>	EF <sub>Noncancer</sub>	C <sub>groundwater</sub>	EF <sub>Cancer</sub>	EF <sub>Noncancer</sub>	C <sub>groundwater</sub>	EF <sub>Cancer</sub>	EF <sub>Noncancer</sub>		
CI-MW-1-WT	6/16/2010	0.34	0.003	0.0002	9.5	10.556	0.0731	19	-	0.0613	0.5	-	0.0018	<0.20	-	-	<b>10.558</b>	0.1364
MW-2	6/17/2010	<0.40	-	-	<b>68</b>	<b>75.556</b>	<b>0.5231</b>	10	-	0.0323	3	-	0.0107	<0.40	-	-	<b>75.556</b>	0.5660
MW-3	6/16/2010	<0.20	-	-	<b>4.6</b>	5.111	0.0354	33	-	0.1065	0.26	-	0.0009	0.65	0.217	0.0074	5.328	0.1502
MW-4	6/17/2010	<0.20	-	-	<b>2.5</b>	2.778	0.0192	1.2	-	0.0039	<0.20	-	-	<0.20	-	-	2.778	0.0231
MW-5	6/16/2010	<1.0	-	-	<b>130</b>	144.444	1.0000	<b>100</b>	-	0.3226	2.2	-	0.0079	<b>5.1</b>	1.700	0.0580	<b>146.144</b>	1.3884
MW-6	6/17/2010	<b>5.5</b>	0.046	0.0039	<b>6.8</b>	7.556	0.0523	3.9	-	0.0126	<0.20	-	-	<0.20	-	-	7.601	0.0688
MW-7	6/17/2010	<b>9.4</b>	0.078	0.0067	<b>8.1</b>	9.000	0.0623	5.8	-	0.0187	<0.20	-	-	0.43	0.143	0.0049	9.222	0.0926
MW-8	6/16/2010	<0.20	-	-	<0.20	-	-	0.3	-	0.0010	<0.20	-	-	<0.20	-	-	-	0.0010
MW-9-WT	6/16/2010	<b>1.8</b>	0.015	0.0013	<b>26</b>	28.889	0.2000	3.8	-	0.0123	<0.20	-	-	<0.20	-	-	<b>28.904</b>	0.2135
MW-10-WT	6/17/2010	<0.20	-	-	<b>39</b>	43.333	0.3000	17	-	0.0548	0.79	-	0.0028	<0.20	-	-	<b>43.333</b>	0.3577
MW-11-WT	6/15/2010	<0.20	-	-	<0.20	-	-	0.32	-	0.0010	<0.20	-	-	<b>2.0</b>	0.667	0.0227	0.667	0.0238
MW-12-WT	6/15/2010	<0.20	-	-	0.33	0.367	0.0025	<0.20	-	-	<0.20	-	-	0.31	0.103	0.0035	0.470	0.0061
MW-13-WT	6/17/2010	<0.20	-	-	<0.20	-	-	0.26	-	0.0008	<0.20	-	-	<0.20	-	-	-	0.0008
MW-14-WT	6/16/2010	<0.20	-	-	1.2	1.333	0.0092	3	-	0.0097	0.22	-	0.0008	<0.20	-	-	1.333	0.0197
CG-137-WT	6/18/2010	<0.40	-	-	<b>98</b>	108.889	0.7538	50	-	0.1613	7.7	-	0.0275	0.92	0.307	0.0105	<b>109.196</b>	0.9531
CG-141-WT	6/15/2010	<0.20	-	-	<0.20	-	-	<0.20	-	-	<0.20	-	-	<0.20	-	-	-	-
<b>Commercial Groundwater IPIMAL (µg/l) - Cancer</b>		120			0.9			-			-			3				
<b>Commercial Groundwater IPIMAL (µg/L) - Noncancer</b>		1,400			130			310			280			88				

**NOTES:**

<sup>1</sup>Monitoring wells with a CCEF exceeding 10 are presented in bold and indicate that nearby buildings are proposed for further evaluation under Tier 3 of the IPIM approach (Table 1). These buildings have a potential cumulative inhalation cancer risk due to vapor intrusion of 1E-05 or greater.

<sup>2</sup>Monitoring wells with a NCCEF exceeding 10 are presented in bold and indicate that nearby buildings are proposed for further evaluation under Tier 3 of the IPIM approach (Table 1). These buildings have a potential cumulative inhalation cancer risk due to vapor intrusion of 1 or greater.

CCEF = cancer cumulative exceedance factor

IPIM = inhalation pathway interim measure

NCCEF = non-cancer cumulative exceedance factor

µg/l = micrograms per liter